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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/822,670

04/13/2004

Arthur Earl Colvin JR.

2232-195

2881

6449

7590

06/25/2009

ROTHWELL, FIGG, ERNST & MANBECK, P.C.

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WASHINGTON, DC 20005

EXAMINER

GROSS, CHRISTOPHER M

ART UNIT

PAPER NUMBER

1639

NOTIFICATION DATE

DELIVERY MODE

06/25/2009

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PTO-PAT-Email@rfem.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/822,670	<b>Applicant(s)</b> COLVIN ET AL.	
	<b>Examiner</b> CHRISTOPHER M. GROSS	<b>Art Unit</b> 1639	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 March 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 7-50 is/are pending in the application.
- 4a) Of the above claim(s) 22-35 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21, 36-50 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

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### **DETAILED ACTION**

Responsive to communications entered 3/25/2009. Claims 1-5,7-50 are pending. Claims 22-35 are withdrawn. Claims 1-21, 36-50 are under consideration.

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A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/25/2009 has been entered.

### ***Priority***

This application has a filing date of 4/13/2004. Applicant makes no claim for the benefit of any prior-filed application under 35 U.S.C. 119(e) or under 35 U.S.C. 120, 121, or 365(c).

### ***Withdrawn Rejection(s)***

The rejection of claims 1-21, 36-46 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement with regard to "new matter" is hereby withdrawn in view of applicant's amendments to the claims.

### ***Maintained Claim Rejection(s) - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-12,14,17-19,36-40 plus 41,44 plus 47 are rejected under 35 U.S.C. 102(b) as being anticipated by **Singaram et al** (US Patent Application 2002/0106810) and evidenced by Kwok et al (2002 Polymer 45:4017-4027) for the reasons set forth in the office action mailed 1/17/2007 and below.

With regard to new claim 47, Singaram et al teach sensors in figure 8.

*Response to Arguments*

Please note applicant's arguments regarding the semi interpenetrating network (semi-IPN) not constituting an outer surface are deemed persuasive and accordingly claims 48 and 50 are not rejected under art. Nevertheless, applicant's amendments to claims 1 and 36 now read on the full IPN based sensor developed by Singaram et al.

In the remarks entered 3/25/2009 applicant argues not all elements are taught.

Applicant's arguments have been fully considered but they are not deemed persuasive for the following reasons.

On p 14-20, applicant argues Singaram et al do not teach steps (a), (b), (d) of claims 1 and 36 and step (e) of claim 1.

The examiner respectfully disagrees.

With regard to step (a), drawn to providing a support having a surface which comprises at least one polymer, Singaram et al teach in paragraph 0176: "The IPN polymers are typically made by sequential polymerization. First, a network comprising the quencher is formed..." Singaram et al teach in example 15, an alternative embodiment starting with a polymeric dye (network) which is penetrated with quencher polymer generated from monomers including hydroxyethyl methacrylate (HEMA). Said

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quencher or dye network constitutes a support having a surface which comprises at least one polymer. The use of comprises in both lines 2 and step (a) of each of claims 1 and 36 is open to additional elements such as dyes or quenchers.

With regard to step (b), drawn to changing the integrity of the polymer to provide loosened polymer chains that form at least one interlacing area on the surface, Singaram et al continues in paragraph 0176, "...The network is then swollen with a mixture of monomers...", absent evidence to the contrary, a swollen network constitutes loosened polymer chains.

With regard to step (d), drawn to causing the macromolecular indicator to interlace with said at least one interlacing area on the surface or causing the sequential polymerization of said monomers to form polymerization products which interlace with said at least one interlacing area on the surface: this is precisely what a interpenetrating network provides: interlaced dye polymers and quencher polymers. Furthermore, as mentioned above Singaram et al explicitly recite sequential polymerization with a mixture of monomers in an effort to prepare the IPNs.

With regard to step (e), drawn to causing the loosened polymer chains to tighten to produce surface immobilized indicator molecules, as admitted by applicant on p 19 lines 14-15, once said HEMA is polymerized, it no longer loosens (swells) the first polymer. Accordingly, once HEMA is polymerized, such as set forth in example 15 of Singaram et al, the first polymer inherently tightens (due to lack of solvent/monomer).

***Maintained Claim Rejection(s) - 35 USC § 103***

Claims 1-12,14,17-19, 36-40 plus 41,44 and 13,15-16, 20-21 plus 42,43,45,46 plus 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Singaram et al** (US Patent Application 2002/0106810) in view of **Daniloff et al** (US Patent Application 2002/0090734) with evidence provided by Kwok et al (2002 Polymer 45:4017-4027) and Colvin et al (US Patent application 2003/0013204 – IDS entry 4/1/2004) for the reasons set forth in the office action mailed 1/17/2007.

With regard to new claim 49, Daniloff et al teach light (optical) waveguides in paragraph 0060.

***Response to Arguments***

Applicant does not offer further arguments regarding the above obviousness rejections beyond what was set forth with regard to the 35 U.S.C. § 102 rejection, above. To the extent that Applicant is merely repeating their previous argument, the Examiner contends that those issues were adequately addressed in the above sections, which are incorporated in their entireties herein by reference.

***New Claim Rejection(s) – 35 USC § 112***

The following is a quotation of the **first** paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 48 and 50 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter

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which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This rejection concerns “new matter”

New claims 48 and 50 are drawn to the outer surface of a support.

On p 14 second paragraph applicant attempts to point to support for outer surfaces of supports in original claims 31,35 and paragraphs 0011 and 0014 of the specification and figures 2A,2B, 3A and 3C for support.

In this vein, it is noted that original claims 31 and 35 and paragraph 0011 are drawn to a sensor body with a polymeric outer surface, whereas new claims 48 and 50 do not include a sensor body. No support for the more generic outer surfaces are found in paragraphs 0011 and 0014 which describe figures 2A,2B, 3A and 3C.

Accordingly the specification as originally filed provided no implicit or explicit support the broader genus of providing a support having an outer surface for non-covalent attachment of a macromolecular indicator outside of a sensor body.

Applicants are reminded that it is their burden to show where the specification supports any amendments to the disclosure. See MPEP 714.02, paragraph 5, last sentence and also MPEP 2163.06 I.

MPEP 2163.06 notes “If new matter is added to the claims, the examiner should reject the claims under 35 U.S.C. 112, first paragraph - written description requirement. *In re Rasmussen*, 650 F.2d 1212, 211 USPQ 323 (CCPA 1981).” MPEP 2163.02 teaches that “Whenever the issue arises, the fundamental factual inquiry is whether a claim defines an invention that is clearly conveyed to those skilled in the art at the time

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the application was filed...If a claim is amended to include subject matter, limitations, or terminology not present in the application as filed, involving a departure from, addition to, or deletion from the disclosure of the application as filed, the examiner should conclude that the claimed subject matter is not described in that application. MPEP 2163.06 further notes "When an amendment is filed in reply to an objection or rejection based on 35 U.S.C. 112, first paragraph, a study of the entire application is often necessary to determine whether or not "new matter" is involved. *Applicant should therefore specifically point out the support for any amendments made to the disclosure.*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTOPHER M. GROSS whose telephone number is (571)272-4446. The examiner can normally be reached on M-F 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Low can be reached on 571 272 0951. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Christopher M Gross  
Examiner  
Art Unit 1639

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Supervisory Patent Examiner, Art Unit 1639